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LABOR AND OTHER FACTORS INFLUENCING DAIRY PRODUCTION
IN THE LOS ANGELES MILKSHED, NOVEMBER 1942

Washington, D. C.
February 1943

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SUMMARY

Despite scarcity of efficient, stable workers and other wartime handicaps, dairy production in the Los Angeles milkshed has been maintained through 1942. But population influx and expanding consumer incomes have resulted in increased demand which, when set against the same level of production within the usual boundaries of the shed, leave milk in short supply. Part of the additional demand is met by expanding the boundaries of the milkshed and part goes unmet.

As compared with a year before, dairymen of the Los Angeles milkshed in October 1942 were hiring 16 percent fewer workers. As the number of family workers increased slightly, reduction in total labor force was less (8 percent). The decreases of manpower took place chiefly on medium-sized dairies (between 50 and 200 cows); small and large dairies retained approximately the same size of labor force.

Medium-sized dairies were able to adjust to a smaller labor supply, mainly through installation of milking machines. For small dairies, machines are often not feasible and on large dairies they had already been installed, but on the latter some expansion in use was possible.

In the last year, the dairy labor supply has been unstable and the rate of labor turn-over high. For each hired worker on dairies at the end of the year, two different workers had been hired during the year. Medium-sized dairies experienced the most rapid labor turn-over.

Labor turn-over and adjustments to labor scarcity are both reported as adversely affecting production per cow. Frequent changes in the milker will cause a cow to produce less, and production is still more adversely affected when the milker is inexperienced or careless. In substituting the milking machine for hand milking, production is again adversely affected because some cows will not tolerate the machine and have to be culled and replaced by younger cows. Others that adapt to the machine do not produce so well under machine milking.

Workers leaving individual dairies went mainly to other dairy farms in the area and to war jobs. The number going to the armed forces (14 percent) is approximately equal to the net decrease in hired workers on all dairies. Those lost from the dairy farms were men between 20 and 40 years of age. There was only a very slight tendency to replace those lost by hiring youths, older persons, women, or inexperienced workers. When a worker left, the most usual practice was to obtain an experienced worker from another dairy in the area to replace him. Dairymen readily agreed that bidding among themselves was the principal cause of instability and turn-over of workers.

Wage rates for milkers increased by approximately one-third during the year ending October 1942. Although this is a considerable increase, it is less than the percentage increase in general farm rates for the State as a whole. Most dairy wage rates are now well above the minimum stipulated in the union agreements in effect in the large dairies.

In October 1942, the typical machine milker in the Los Angeles dry-lot area received \$200 to \$225 per month and the typical hand milker \$185 to \$215. These cash wages, together with the free milk received, are sufficient to compete fairly well with unskilled pay in war industries. In the last few months, dairymen report little loss of workers to war industries; in fact, there are reports that since the War Manpower Commission order affecting dairy workers was issued in October a few former dairy workers have returned from their war jobs.

There is little uniformity in rates of pay. Wages vary with the size of dairy, the area, and the job. Jobs themselves vary a great deal in number of tasks to be performed. A milker may milk only; or he may also strip, feed, clean the barn, weigh and dump the milk, etc. Consequently, the number of cows handled also varies. Even where the jobs appear to be substantially the same, large differences in wage rates still occur.

Milk cows are not kept long under the high-pressure feeding in the Los Angeles dry-lot area. Typically, cows are shipped into the area, milked 2 or 3 years, and then sent to slaughter. The normal culling rate is between 33 percent and 40 percent per year. During the last year, the rate has evidently increased toward 50 percent. This increased rate is not due to higher production standards, but is because more cows are failing to meet the normal standard of 30 to 35 pounds of milk fat per month. In fact, the production standard has possibly been slightly lowered to avoid excessive culling. Scarcity of efficient, careful workers, together with adjustments required because of this scarcity, partly explains the failure of more cows to meet production standards. In addition, it was reported that cows shipped into the area during the last year are of lower quality than formerly.

Although specific evidence is fragmentary, indications are that dairy animals have recently been slaughtered at an abnormally high rate. A high rate of culling in conjunction with favorable beef prices would automatically produce a high rate of dairy cattle slaughter in the Los Angeles area. Any plan for salvaging the production capacity of these cows must be reconciled with the fact that cows culled from the dry-lot herds are often unbred or otherwise not well suited for immediate milk production even in an area with lower production standards. The total cost of the cull cow for dairy use outside the Los Angeles area would be the value for beef plus the costs of transportation and feed until freshening. In most instances, a good dairy cow could be bought in the locality for less than this amount.

The many wartime difficulties and inconveniences notwithstanding, dairymen have evidently experienced favorable financial returns during the last year. A budget of income and expenses for a typical 90-cow dairy substantiates the favorable return and indicates a higher margin of profit than prevailed in 1941, primarily because of a substantial upward adjustment in the price received for milk. However, with retail price ceilings in effect which tend also to determine upper limits on producers' prices, but with no definite and certain limits upon the prices of production factors - principally labor and feed - prospects for the future are most uncertain. A 10 percent increase in the cost of feeds, even with labor costs stabilized, but with no compensating increase in the price received for milk, could easily change profits in 1942 to losses in 1943, with attendant dangers to the continued maintenance of the present supply of fluid milk for the Los Angeles milkshed.

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LABOR AND OTHER FACTORS INFLUENCING DAIRY PRODUCTION
IN THE LOS ANGELES MILKSHED, NOVEMBER 1942

I. THE PROBLEMS AND THE METHODS OF INVESTIGATION

A shortage of fluid milk and dairy products has threatened the Los Angeles metropolitan area for many months. Milk requirements have increased greatly because of combined expansion in population and in purchasing power per individual. The population of Los Angeles County is estimated by the California Taxpayers Association to have increased more than 200,000 (8 Percent) from April 1940 to the end of 1942. During this time of increasing demand for dairy products, there has been reason to question whether production within the milkshed was being maintained. Labor was short, wages were high, and it was well known that dairy cows were going to slaughter in very large numbers. To obtain adequate supplies for the metropolitan area, Los Angeles distributors were getting more and more fluid milk and cream from the San Joaquin Valley.

This investigation was undertaken because of the serious situation impending and related responsibilities of the United States Department of Agriculture. These responsibilities include stabilization of wages on dairy farms, control of sale of dairy cows for slaughter, and participation with the U. S. Employment Service in recruiting, training, and stabilizing dairy workers.

Fortunately, much fundamental information is available on the dairy industry of California. This investigation has drawn heavily upon these sources to supplement the information collected very rapidly during mid-November 1942.

Most of the fluid milk for the Los Angeles metropolitan area is produced on the outskirts of the city, largely within a radius of 25 miles. Many dairies are concentrated in the suburban area to the south and east of the city proper, in or near the towns of Norwalk, Hynes, Artesia, El Monte, and others in that general vicinity. Dairies in these areas, together with a few that are located northwest of the city constitute the highly specialized "dry-lot" enterprises that are peculiarly characteristic of the Los Angeles-Orange County area. Probably more than four-fifths of the city's fluid milk (exclusive of cream) originates in this area.

Dry-lot dairies of the Los Angeles area are highly specialized and commercialized. Many are conducted on a very large scale. Feeding is extremely heavy; practically no feed is produced on the farm and very little within the area. Many dairies have no more than 3 or 4 acres of land. The most usual dairy contains approximately 90 cows but several have herds as large as 2,000. Replacements are usually imported, many coming from outside the State. Individual cows are kept in the herd for only a relatively short time and the normal replacement runs 35 to 40 percent per year. Most of the animals culled from the herds go directly to slaughter. For herds with 50 cows or less nearly all of the work is performed by the family, but as the size of herd increases hired labor becomes progressively more necessary. In the larger herds hired workers reach a high degree of job specialization.

Farther to the east of the city lies another production area centering around Ontario and Chino, on the boundary of Los Angeles and San Bernardino Counties, from which additional fluid milk supplies are obtained. (This is referred to hereafter as the San Bernardino area.) Dairies of this area have some of the

characteristics of the central dry-lot enterprises but tend to merge into more generalized, diversified farming. Probably 10 to 15 percent of the fluid milk originates here.

The San Joaquin Valley is the third major producing area from which the Los Angeles market is supplied. Its contribution to the fluid milk supply is small, but much of the fluid cream sold in city markets comes from here. The San Joaquin Valley is an area of great elasticity in supplying milk for metropolitan Los Angeles. As supplies from areas nearer the marketing center expand or contract and as milk requirements vary the boundary of Los Angeles milkshed moves northward or southward in the manufacturing milk area of the San Joaquin Valley. At present, supplies of milk from nearby sources are relatively scanty and demand for milk is greatly increasing. Accordingly, the boundary of the milkshed is moving northward and many producers in the San Joaquin Valley who have heretofore been supplying fluid cream and manufacturing milk are now supplying fluid milk for the Los Angeles market.

Method Used in the Survey

In addition to assembling available information from secondary sources, data for this investigation were obtained from 93 dairy operators. Sixteen were fluid cream producers in Tulare County, also shipping to Los Angeles. The fluid milk producers were selected from a list of 731 dairies supplying to Los Angeles market in August. Names of producers were grouped by area and size of monthly butterfat deliveries. A sample was obtained by random selection according to the quantity of butterfat produced. The number of producers chosen from each group was approximately in proportion to the relative number in that category.

For the fluid cream producers of Tulare County, lists were obtained from the Los Angeles County Health Department Field Inspection Office in Tulare. This office also had information on the approximate number of cows in each dairy. A list of names for the sample was chosen in conformity with the size of dairy as indicated by inspectors for the Los Angeles County Health Department. In the enumeration of the dairies, some departures from the original sample were necessary because of time limitation, failure to locate the operator, etc., but the group of records finally secured contained only a few dairies other than those originally selected.

The dairies enumerated represent approximately one-tenth of the total in the milkshed. The size and location of the enumerated dairies are as follows:

	Los Angeles dry-lot	San Bernardino	Southern San Joaquin	Total
Dairies with less than				
50 cows	11	5	7	23
50 - 100	13	4	11	28
100 - 200	22	5	7	34
200 and over	5	2	1	8
Total	51	16	26	93
Average cows per dairy	130	98	80	111

Of the 126 dairies in the southern San Joaquin area, 10 were fluid milk producers located in Kern County; 16 were fluid cream producers located in Tulare County.

In addition to the 95 dairymen who supplied information for detailed survey schedules, many other dairymen contributed through informal conversations and group meetings. To these dairymen and to the following persons, agencies, or associations grateful acknowledgment is made:

A.M.L. Local , 737 - Hay Haulers, Dairy Employees, and Helpers (Los Angeles);
Martin H. Blank, Dairy Economist (Los Angeles); Bureau of Animal Industry,
California State Department of Agriculture (Sacramento and Los Angeles);
Bureau of Markets, California State Department of Agriculture (Sacramento);
California Agricultural Extension Service (Berkeley, Los Angeles,
Bakersfield, Visalia);
California Cooperative Crop Reporting Service (Sacramento);
California Dairy Council (San Francisco and Los Angeles);
California Dairyman (Los Angeles);
California Milk Sales Agency (Los Angeles);
California Cream and Butter Association (Los Angeles);
California State Market News Service (Los Angeles);
California State Creamery (Tulare);
Kern County Health Department (Tulare);
Kern County Livestock Department;
Los Angeles Union Stockyards;
Meat Packers, Inc. (Los Angeles);
San Joaquin and County U.S.D.A. War Boards (Berkeley, Los Angeles, Bakersfield);
U. S. Employment Service (Los Angeles, Glendale, Huntington Park);
Western Livestock Journal (Los Angeles).

III. CHANGES IN THE WORKING FORCE

Number, Age, and Sex of Workers

The labor force handling milk production in the Los Angeles milkshed in October 1942 was only about nine-tenths as large as it was a year ago. On the 98 dairy farms included in the survey, the total working force, including operator and family labor and regular hired workers, was 7.7 percent less than in October 1941. The change in force was the same in the Los Angeles dry-lot area as in the milkshed as a whole, but in the San Bernardino area no change was experienced, while in the southern San Joaquin area, the rate of loss was double that of the whole milkshed (13.3 percent) (table 1).

Dairies ranging from 50 to 200 cows suffered the most severe loss of labor force. Those having from 50 to 100 cows were operating with over one-fourth fewer hired workers. Losses of hired workers on dairies of 100 to 200 cows were not quite that large, but inasmuch as hired workers constitute a larger proportion of the total labor force on these large dairies, the effect on total manpower was greater. Dairies having 200 cows and more and those having less than 50 cows were able to keep their forces at approximately the same level as the year before.

Findings of relatively great change in force on the medium-size dairies do not necessarily mean that the impact of labor scarcity has hit them most severely. Rather, the significant point is that it has been easier for the medium-size dairies to make appropriate adjustments. Generally, dairies with less than 50 cows are handled largely with family labor. Furthermore, these small dairies cannot be so easily mechanized. The means through which the dairies of 50 to 200 cows adapted to a restricted labor supply were mainly installation or enlargement of milking machines and greater specialization of jobs. The use of machines reduced labor requirements; greater specialization of jobs permitted experienced and skilled workers to confine their work to appropriate jobs whereas inexperienced workers were hired for the jobs requiring less skill or experience. Inasmuch as the large dairies of 200 cows and more had already installed milking machines and specialized their jobs, they were not in position to make many such adjustments. Therefore, to maintain production, it was necessary for the large dairies to keep their labor force at about the same level as the year before.

Losses of manpower have been entirely confined to the hired group. The number of family workers either remained the same or increased slightly for all sizes of dairies in each area. For the milkshed as a whole, the increase in family workers was approximately 4 percent.

Decreases in labor force have moreover been confined within the age range of 20 to 40 years (table 2). The number of hired workers from 20 to 30 years of age was 20 percent less in October 1942 than a year earlier; among those 30

Table 1.-- Working force on 93 dairy farms in the Los Angeles milkshed,
October 1941 and October 1942

Los Angeles									
of dairies: 1941: 1942:									
No.	No.	No.	Pct.	No.	No.	Pct.	No.	No.	Pct.
11	19	20	+ 5.3	2	2	0.0	22	22	+ 0.0
13	25	23	+12.0	22	16	-27.3	47	41	- 6.4
22	35	35	0.0	60	47	-21.7	95	92	- 3.2
5	8	9	+12.5	52	49	- 5.8	60	58	- 3.3
51	37	32	+ 3.7	126	114	-10.3	121	122	+ 0.8
16	25	26	+ 4.0	45	44	- 2.2	70	70	0.0
26	49	49	0.0	49	36	-26.5	93	85	- 8.6
Southern San Joaquin									
All milkshed									
23	43	44	+ 2.3	8	7	-12.5	51	51	0.0
28	56	60	+ 7.1	44	31	-29.5	100	91	- 9.0
34	50	50	0.0	105	79	-24.8	155	129	- 16.8
3	12	13	+ 8.3	73	77	+ 5.5	85	90	+ 5.9
93	161	167	+ 3.7	230	184	-19.6	391	331	- 15.3

As of a given date so that this corresponds to the number of jobs filled by hired workers on that date.

Table 2.- Age classification of labor force on 93 dairies in the Los Angeles milkshed, October 1941, and October 1942.

Age	Family head and wife				Other family members				Non-family members			
	No.	No.	Pct.	No.	No.	No.	Pct.	No.	No.	No.	Pct.	No.
Under 20	33	34	+ 3.0	3	8	166.7		36	43	+ 19.4		
20 - 29	7	7	0.0	70	56	- 20.0		82	67	- 19.3		
30 - 39	15	14	- 6.7	80	55	- 31.2		127	93	- 26.3		
40 - 49	4	8	+100.0	29	36	+ 24.1		31	61	+ 96.8		
50 - 59	2	2	0.0	18	18	0.0		22	35	+ 59.1		
60 and above	2	5	+150.0	6	16	+166.7		14	52	+ 271.4		
Total known	63	70		206	189			352	363			
Unknown	5	4		24	5			45	22			
Total	68	74	+ 8.8	230	194	- 15.7		391	381	- 2.6		7.7

1/ Includes 31 females in 1941 and 36 females in 1942.

2/ Includes 92 male operators and 1 female operator not included with family workers.

... the increase was 31 percent. Since over half the hired workers are in the productive age range, the impact upon total labor force is considerable. As a partial offset of these losses, there have been marked increases in employees under 20 and over 60. There was also some increase in the 40 to 50 year age group, but no change in those 50 to 60. Women have not replaced men as hired workers, although one female worker was hired during the year.

The age and sex composition of the family force remained practically unchanged, as did also the number. There was no significant loss of workers in the 20- to 40-year age range. A few additional females resulted in a small net increase in the total number of family workers.

Employment of youths, women, and girls is of significance only in the family labor force. This was true in October 1941 and October 1942 as well. Workers under 20 comprised 52 percent of the family force in 1941 and 49 percent in 1942.

Despite the substitutions and adjustments that have been made, the dairy force is still made up principally of young males. Although female workers are fairly important in the family labor force, they still constitute only one-eighth of the total force. More than one-half of the hired males in October 1942 were between 20 and 40 and an additional one-fifth were between 40 and 50.

Table 3.- Age and sex of labor force of 93 dairies in the Los Angeles milkshed, October 1942

Age	: Operators :		: Family :		: Regular hired :		: Total :		
	: M :	: F :	: M :	: F :	: M :	: F :	: M :	: F :	: All :
	: No. :	: No. :	: No. :	: No. :	: No. :	: No. :	: No. :	: No. :	: No. :
Under 20	: 0	: 0	: 24	: 10	: 8	: 0	: 33	: 10	: 43
20 - 29	: 2	: 0	: 6	: 1	: 55	: 1	: 65	: 2	: 67
30 - 39	: 24	: 0	: 3	: 11	: 55	: 0	: 82	: 11	: 93
40 - 49	: 28	: 0	: 2	: 6	: 36	: 0	: 62	: 6	: 68
50 - 59	: 18	: 0	: 1	: 1	: 18	: 0	: 34	: 1	: 35
60 and over	: 9	: 1	: 2	: 3	: 16	: 0	: 29	: 4	: 33
Unknown	: 14	: 0	: 0	: 4	: 5	: 0	: 18	: 4	: 22
Total	: 92	: 1	: 38	: 36	: 193	: 1	: 323	: 38	: 361

While there has been some replacement of the 20- to 40-year-old workers for dairy employment, this replacement has not been uniform in the Los Angeles dry-lot area. This is apparent from an analysis of the age-sex composition of milkers alone in the Los Angeles dry-lot area. Dairymen surveyed in this area lost 23 milkers between the ages of 20 and 40, and there were only three replacements from the older ages (table 4). This finding supports indications that dairymen are making other adjustments to labor scarcity. By installing machines and further specializing the job of milking, they are able to round out their crews by hiring older and younger workers for other jobs about the dairy. This enables them to conserve experienced and efficient workers for the more difficult jobs.

Table 4 - Age classification of milkers on 51 dairies in the Los Angeles dry-lot area, October 1941 and October 1942

Age	October 1941	October 1942	Change 1941-1942
	No.	No.	No.
Under 20	1	1	0
20 - 29	34	1/ 23	- 11
30 - 39	46	34	- 12
40 - 49	16	17	+ 1
50 - 59	6	5	- 1
60 and over	3	6	+ 3
Total	106	86	- 20

1/ Includes 1 female.

Labor Turn-Over

It is generally recognized that a high rate of turn-over in labor has a disrupting effect upon cows and their level of production. Production usually declines during the adjustment of cows to the new milker, even though the milker be of the best. Frequently, careless milkers cause an additional loss in production.

During the first 10½ months of 1942 dairymen in the sample hired 334 workers; at that rate by the end of the year they will have hired a total of 382. That is double the number of workers employed in October 1942. In other words, aggregate turn-over among employed workers was 200 percent per year.

The rate of turn-over was greatest in the Los Angeles dry-lot area, where the rate of turn-over ranged two and one-half times. ^{1/} Dairymen in the northern San Joaquin Valley had experienced a somewhat smaller rate of turn-over (160 percent) but even this was far from the stability found in the San Francisco area, where turn-over was 80 percent (table 5).

As will be seen by further reference to table 5, labor was more stable on the smaller and larger farms, and turn-over was relatively great on dairies having over 50 but less than 200 cows.

Responsibility for excessive turn-over is due to the action of dairymen as well as workers. Dairymen were frank in discussing their practice of poaching workers from each other. It was said, "Dairymen bid for milkers like they were on the auction block". The suggestion that wages might be stabilized to prevent poaching brought the response that "Fixing wages will not do the job so long as employers can give easier jobs at the same pay". This is a particularly difficult problem to handle because standardization of jobs in dairying cannot be carried very far except in the largest dairies.

Some dairymen believe that turn-over is partly due to rumor and exaggeration about wages and work. Very high wages and easy work are said to have attracted workers away.

It was difficult for dairymen to supply accurate information about the destination of workers leaving the dairies. One factor which contributed to this difficulty was undoubtedly the reluctance of the worker always to give the true reason for quitting. Another factor entering into the picture is that workers who said they were leaving to get nonfarm jobs apparently were not able to get as good a job as they had heard about or were not able to make satisfactory arrangements for housing or for transportation. Therefore, they would ultimately come back to dairy work even though they said they were leaving for another type of job. If they sought dairy work on a different farm, as is evidently the general practice, the former employer would be left with the false impression that they really did leave dairy employment. But the new dairy employer would simply understand that they were experienced dairy hands coming from nearby dairy farms.

^{1/} This rate of turn-over agrees closely with that found by the Bureau of Markets of the State Department of Agriculture. Their investigation in June 1942 disclosed a rate of turn-over in excess of 100 percent for the first 6 months of the year. In addition, the Bureau of Markets found that turn-over was greatest in the medium salary ranges. Since salaries tend to increase with the size of the dairy, this also agrees with the above finding that turn-over was relatively great on the medium-sized dairies. See Report of the Bureau of Markets to the Director of Agriculture Concerning Current Economic Conditions Affecting the Dairy Industry, Sacramento, California, September 6, 1942.

Table 5.- Change in the number of hired dairy workers employed in October 1941, and October 1942, and rate of turn-over for 93 dairies in the Los Angeles milkshed

Area and size of dairy herd 1/	Hired dairy workers			Number of dairy workers who were hired		Ratio: No. workers hired to no. working Oct. 1942
	Oct. 1941	Oct. 1942	Change: 1941-1942	During Jan. 1 to Nov. 15, 1942	Adjusted to annual basis 2/	
	No.	No.	Pct.	No.	No.	
Los Angeles						
Under 50 cows	2	2	0.0	5	6	3.0
50 - 99	22	16	-27.3	31	36	2.2
100 -199	60	47	-21.7	127	145	3.1
200 and over	52	49	-5.8	88	101	2.1
Total	136	114	-16.2	251	288	2.5
San Bernardino	45	44	-2.2	31	35	0.8
Southern San Joaquin	49	36	-26.5	52	59	1.6
All milkshed						
Under 50 cows	8	7	-12.5	6	7	1.0
50 - 99	44	31	-29.5	57	65	2.1
100 -199	103	73	-29.3	159	162	2.3
200 and over	73	77	+5.5	112	128	1.7
Total	230	194	-15.7	334	382	2.0

1/ Includes cows milking and dry cows.

2/ On the assumption that workers will be hired at the same rate between November 15, and December 31, 1942.

This may explain in part why dairymen reported that they hired 228 workers who came from other dairy farms in the area, whereas only 102 of the workers leaving their dairies were indicated as going to other dairies. As reported, a total of 355 workers left their dairy jobs, and of these 36.6 percent went to other dairy farms in the area while 45.1 percent went to nonfarm jobs (table 6). But of the 334 hired, 73.5 percent were reported as coming from other dairies. Balancing these two figures and the above-mentioned possibilities, it must be concluded that the loss of workers to nonfarm jobs was something less than 45 percent. From their investigation covering the first 6 months of 1942, the State Bureau of Markets reports a loss to nonfarm jobs of 36.6 percent and a loss of 46.4 percent to other dairies. ^{2/} This study did not cover the previous employment of those who were hired during the period, and therefore does not permit the two-way comparison.

Another indication of some significance is that less than one-tenth of the workers hired during the year were inexperienced (table 7). In view of the labor scarcity that has been supposed, this is a remarkably low rate of introduction of new workers.

Information about inductions into the armed forces is undoubtedly more reliable. It was found that 14 percent of those leaving went into the armed forces. This figure compares with 17 percent which was the finding of the State Bureau of Markets for the first 6 months.

From the 33 dairies in this study, 39 persons had gone to the armed forces. From these same dairies, the total loss of male force from 20 to 40 years of age was approximately 50, and the net loss of manpower was 30. Therefore, it appears that absorption into the armed forces accounts for the net decrease in working force. Opportunities in war plants may account for some of the turnover and the necessity for obtaining replacements. But the fact that these replacements were mainly experienced men from other dairies further indicates that the principal factor in dairy labor instability was turn-over from one dairy to another.

Substitution of Labor-Saving Equipment

As was stated earlier in this section, the loss of labor force on medium-sized dairies was closely associated with the installation of milking machines. This is further demonstrated in table 8. Milking machines are universal on dairies of 200 or more cows and were so a year ago. Most dairies under 50 cows milk by hand and, except for one dairy, those who use machines acquired them during the year. In the Los Angeles dry-lot area, half of the survey dairies between 50 and 200 cows installed machines during the year. Three machines were also installed on dairies of the same size range in the San Bernardino area. No machines were installed during the year in the southern San Joaquin area. This further indicates an especially heavy impact of labor scarcity in the latter area because, as will be recalled, decrease in the labor force was greatest here.

Table 1. - Males, including family labor, who worked on the dairy sometime between January 1, 1942, and November 1, 1942, but who left for other jobs within that period: by dairies in the Los Angeles milkshed

Destination of workers leaving	Total milkshed		Los Angeles		San Bernardino		San Diego	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
Other dairy farms in area	102	30.8	39	40.0	3	23.1	7	32.1
No dairy farms in area	7	2.5	3	1.1	3	11.5	1	3.2
Other farms else- where	3	1.1	1	0.5	0	.0	2	0.8
Armed forces								
Collegiate Service	31	11.3	23	10.4	5	19.2	3	13.1
Training	3	0.9	3	2.3	0	.0	1	3.2
Nonfarm jobs	126	45.1	99	44.5	12	46.2	15	40.4
Deceased	2	0.7	2	0.9	0	.0	0	.0
Total known	279	100.0	222	100.0	28	100.0	31	100.0
Unknown	76		42		3		25	
Total	355		264		32		56	

1/ All males.

Table 7.- Workers hired by 93 dairies in Los Angeles milkshed, January 1 to November 15, 1942, and their previous employment

Previous employment	Los Angeles milkshed						Southern San Joaquin Valley					
	Total :Percentage:Experi-: Inexpe- :hired : of all : ended : rienced		No. : Pct.		No. : Pct.		Total :Percentage:Experi-: Inexpe- :hired : of all : ended : rienced		No. : Pct.		No. : Pct.	
Other dairy farms in the area:	228	73.5	224	4	1/197	30.8	135	2				
Nondairy farms in the area :	13	4.2	12	1	3	1.2	2	1				
Other farms elsewhere:	51	16.5	42	9	32	13.1	31	1				
Nonfarm employment :	15	4.3	12	3	11	4.5	10	1				
Unemployed :	3	1.0	0	3	1	0.4	0	1				
Total known :	310	100.0	290	20	244	100.0	232	3				
Unknown :	24		14	10	7		7	3				
Total :	334		304	30	251		245	6				
	San Bernardino											
Other dairy farms in the area:	12	46.2	11	1	19	47.5	13	1				
Nondairy farms in the area :	2	7.7	2	0	3	20.0	3	0				
Other farms elsewhere :	11	42.3	3	3	8	20.0	3	0				
Nonfarm employment :	0	0.0	0	0	4	10.0	2	2				
Unemployed :	1	3.8	0	1	1	2.5	0	1				
Total known :	26	100.0	16	10	40	100.0	36	4				
Unknown :	5		5	0	12		2	10				
Total :	31		21	10	52		38	14				

1/ Includes 1 female worker.

Table 3.- Use of milking machines: 93 dairies in the
Los Angeles milkshed, October 1942

Area and size of herd	Number of dairies	Using milking machine October 1942		Change in use of machines during the last year	
		Number of dairies	Percentage of all dairies	Dairies chang- ing to machine milking	Dairies ex- tending use of machines
			Per.	No.	No.
<hr/>					
50 - 99	13	9	69	7	0
100 - 199	22	18	82	10	1
200 and over	5	5	100	0	3
Total	51	35	69	20	4
<hr/>					
San Bernar- dino					
0 - 50	5	1	20	0	0
50 - 99	4	2	50	2	0
100 - 199	5	5	100	1	0
200 and over	2	2	100	0	1
Total	16	10	63	3	1
<hr/>					
San Joaquin					
0 - 50	7	1	14	0	0
50 - 99	11	6	55	0	0
100 - 199	7	5	71	0	0
200 and over	1	1	100	0	0
Total	26	13	50	0	0
All milkshed	93	58	62	23	5

With a machine a milker can handle from 50 to 100 percent more cows. It is usually true that inexperienced persons can learn machine milking more quickly than they can acquire the technique of hand milking. Furthermore, where machines are used, it is easier to specialize the job and the output of a milker increases greatly where he does not have to feed, wash the cows, or handle the milk. Therefore, the installation of milking machines saves labor directly and, in addition, creates the possibility of utilizing more inexperienced and partly experienced workers.

Supply and Recruitment of Workers

Dairy farmers are exceedingly reluctant to hire the totally inexperienced. Most dairy workers who lack experience in the highly commercialized methods of dairying are considered to be nearly inexperienced. Some farmers are willing to hire persons with farming experience, especially if they have milked a few cows at some time. Of those hired for dairy work since January 1, 1942, there were 42 with dairying experience who were not hired from other dairy farms in the area. These, in addition to the totally inexperienced persons, constituted 20 percent of the number of dairy workers hired by farmers in the sample since January 1, 1942.

So far the organized attempts to recruit and train inexperienced persons for dairy work have had little success. A school for milkers is operated but is not considered to be a significant source of the type of workers that farmers will hire. Experimentations of an apprentice system are in evidence. Dairymen and union officials believe an apprentice system is far more promising as a method to relieve the situation. The greatest difficulty so far has been the reluctance of some farmers to hire apprentices, and the shortage of trainees. There are no union barriers to apprenticeship or membership. It is reported that several women have been hired as dairy workers, but only the exceptional woman can do the work required.

Greater employment of family labor units, that is, husband and wife, or father and son, is a favorable possibility for meeting labor requirements on smaller dairy farms. In addition, several of the larger dairymen who have individual properties in the outlying sections of the area would like to hire family labor units.

Milker's Schools: A milking school has been organized and put into operation near Van Nuys. It is jointly financed by Federal and State funds and is under the supervision of the California State Division of Agricultural Education. Trainees are referred to the school by the U. S. Employment Service and are to be placed by the Employment Service when training is completed. About 40 persons are now enrolled, of which about one-half are considered to be potentially employable in the Los Angeles area. It is unlikely that the remainder will be offered dairy employment. They are considered to be "too old, too slow, not strong enough, lacking in ability to learn, and generally unfit for the type of work involved". Important difficulties are said to be lack of trainees and the large percentage of persons who fail to complete the training.

Despite some lack of enthusiasm for milking schools, plans have been completed for establishing a second school at the Los Angeles Union Stockyards.

Apprenticeships and Informal Training: With the exception of U. S. Employment Service officials, the opinion was generally held that "on farm" training of persons having farm backgrounds is a better method of increasing the supply of competent dairy farm workers than the schools. Under this plan, a bona fide apprentice relationship would exist in which the apprentice would receive a wage of about \$75 per month while learning. 3/ Of interest to the employer is the fact that the period of apprenticeship would provide an opportunity for training the worker to fit the particular requirements of the job. In addition, both employer and apprentice would have a chance to make the personal adjustments necessary to better relationships.

The apprentice system has the strong support of officials in the local dairy workers' union. They stated that if more dairy farmers were willing to hire apprentice dairy workers and pay them while learning, the present labor situation would be much relieved. Apprentices should be carefully selected because "You can take country boys and make welders of them but you can't make milkers out of city boys". 4/

On the basis of experimentation by some of the larger dairy farms it has been found that the most practical method of training is to start the boys as dairy helpers for about 2 weeks. In this period the apprentices gain a general knowledge of methods and requirements, and the farmer decides whether they are potential dairy workers. For the next 6 weeks, two apprentices are given the responsibility of milking a full string of cows by machine. 5/ At the end of this period the apprentices have either become sufficiently skilled to handle a full string or they have taken a subsidiary job as feeder or cow washer, or they have dropped out entirely.

The system is used also for training persons with some experience in milking but lacking the ability to meet the high requirements for skill and speed in the Los Angeles area. The Long Beach office of the U. S. Employment Service, for example, is referring selected applicants to a field man for the dairy union in the Hynes area. The field man arranges with certain dairymen to employ these applicants as apprentices. He stated that most of these apprentices become full-fledged milkers and union members within 60 days.

3/ One of the reasons given for lack of school trainees is that dairy trainees receive no compensation during their period of training, whereas war industries in the area offer \$75 or more per month during the training period.

4/ George Leonard, Business Agent of A. F. of L., Local 737--Hay haulers, dairy employees and helpers.

5/ The present agreement between the dairy workers' union and 114 employers provides for an apprenticeship period of 60 days.

There are no apprenticeship barriers of sex, color, race, or age insofar as the union is concerned. The regulations of the A. F. of L. International require United States citizenship for union membership but the union is not pressing the issue. Among the union dairy employees at present are three women, several aliens, and a few Negroes and Mexicans. Such persons are rarely acceptable to employers who do not know the individual in question and they are more acceptable as subsidiary workers than as milkers.

Employment of Women: Women are not considered to be a significant source of dairy labor, although several are working on dairy farms in the area. It is anticipated that many of the wives of dairymen in the area have milked cows in the past, but the opinion prevails that few of them are now willing or able to milk regularly. There is some possibility that more women could be employed for milking "short strings," that is, less than the usual number of cows. This proposal is opposed by dairymen who believe that women cannot do the work as well as men. It is further complicated by the union commitment to the principle of equal pay for men and women doing the same work.

Experience in the area indicates that women are more adept at machine milking than other dairy tasks. Hand milking a full string of 30 cows is too heavy a job except for the unusual woman. Washing cows is wet, cold work requiring much bending. Feeding and cleaning are less strenuous but both require heavy lifting at times. Young, strong women of Dutch, Scandinavian or Slavic ancestry could do the work but few women of this type are available. In addition, there is frank recognition that dairy work lacks the romantic or exciting appeal of employment in aircraft or shipyards.

Additional women might be available for dairy work if working hours were made more agreeable. The suggestion has been made that two shifts of workers be used on the larger dairies, one for the morning milking and feeding and one for the evening milking and feeding. The "split shift" system has been used by some dairymen who hire part-time help, but its extension is considered to be unlikely. Union officials saw no great difficulty in adjusting workers to double-shift plans providing there was no reduction in the wage obtained for a given task.

Employment of Family Units: The employment of man and wife as a family labor unit has been successful in some instances for herds that are too large for one man and too small for two men. Instances were cited where a man milked 90 cows by machine, with the assistance of his wife. Several producers looked with favor on this type of labor providing the family group could independently handle all operations of the producing unit. This has been done to some extent in the Chino Valley and other outlying areas. In some instances it amounts to a type of sharecropping with the family furnishing labor for the dairy enterprise and the operator furnishing feed, cows, etc. The system was not considered adaptable to many dairies in the Los Angeles dry-lot area, but dairymen were agreed that a number of farm families could be of considerable help. 6/

It was anticipated by farmers that union difficulties and lack of housing would preclude the use of family labor units on larger dairy farms. Union leaders

6/ The Los Angeles County Agent estimated that perhaps 100 dairies in the area had facilities permitting the use of family labor units.

agreed with the dairymen. They believed that there was a good possibility for using family labor units in outlying areas, but that lack of housing and adjustments in the union contract would make their use in the dry-lot area difficult. However, the local business agent agreed that so long as union wages were paid according to the number of cows and the pounds of milk, it made little difference that this sum was paid to a family unit rather than to a single person.

Recruitment of Experienced Workers: The U. S. Employment Service is the principal agency for recruiting dairy workers in the Los Angeles dry-lot area. Private employment agencies that formerly recruited large numbers of dairy workers are now out of business. The union hiring hall would normally function as an employment agency but it serves now only as a clearing house for employers' orders. The usual process for employers who have union agreements is to telephone their order to the union; from there the message goes to the U. S. Employment Service at Huntington Park. An agreement exists between employers and the U. S. Employment Service that all applicants for dairy work in the Los Angeles dry-lot area will be cleared through the Huntington Park office. The U. S. Employment Service is depending almost exclusively upon publicity in both the press and radio as a means for obtaining dairy workers. It is suggested that a more thorough "screening" of applicants for war-industry jobs in the southern California area would divert many persons having dairy experience from war plants. This practice is likely to be more successful in the Los Angeles area where military salaries compare favorably with those of war-plant workers.

If these agencies are unsuccessful in supplying the requested workers the employer falls back on the customary methods of search. Pool halls, dairy workers' hotels, milk route drivers, and other dairy farms are common sources of information concerning available workers. At various stages of the searching process some employers will turn to pirating neighbors' employees. This is especially true if some other dairyman has pirated one or more of his workers.

At present the U. S. Employment Service office in Huntington Park is operating with an "open order" for dairy workers at the union wage level of \$165 per month. At mid-November this agency believed it could place about 500 dairy workers in the area if they were available. This is approximately 15 to 20 percent of the number of persons normally employed, and conforms with the decline in hired workers on the sample farms.

It has been suggested that Selective Service Occupational Questionnaires might give additional clues to workers but the U. S. Employment Service in Los Angeles states that these questionnaires are largely out of date. Not more than 40 percent of the addresses and employment status are now correct, and this will be worse as time passes. The file could be kept up to date only if Selective Service Boards informed the U. S. Employment Service each time a registrant changed his employment or address.

A third source of partially experienced dairy workers that is suggested for consideration are farm families in some of the submarginal midwestern and southeastern States. The more desirable would be older married men and younger married men having larger families who have farm backgrounds and have some experience with dairy cows. This type of dairy labor is well suited to the San Joaquin dairying area and other outlying areas.

Stabilizing Dairy Workers: Dairy farmers are now operating with 15 to 25 percent less hired labor than they had in the past. This imposes some hardship, but several dairymen and agency representatives in the Los Angeles milkshed believe that production can be maintained if they can keep their present workers. We have seen that labor turn-over is great and its effects on dairy production are not to be minimized. From a broader viewpoint, however, it is the absolute loss of workers that is most critical.

Various methods have been suggested for retaining dairy workers. Deferment by Selective Service and the closing of enlistments will help to retain those who might enter the armed forces in the future. In an indirect way the blanket deferment of milkers would serve to attract milkers from war industry as well as hold others to dairying. It is stated frequently that many of the younger dairy workers entered war industries more for draft deferment than for higher wages.

To mid-November the War Manpower Commission directive of October 26, 1942, had not been generally effective. Most workers and many farmers have not heard of the directive, and U. S. Employment Service and union officials say that no effective means have been developed for enforcing it. Both U. S. Employment Service and union officials are calling workers' attention to it in their efforts to obtain and retain experienced dairy workers. Union field men report that a few dairy workers are now returning from war industry.

Only a few dairymen believe that freezing workers on a specific job is an effective means of holding them. Union officials are emphatically against it. If freezing of any sort is necessary, they suggest that it be on an occupational basis, and that it be brought about by enforcement of the War Manpower Commission directive.

Absolute stabilization of workers on specific jobs does not appear to be desirable from any viewpoint, but all are agreed that a reduction in the turn-over of workers is badly needed. Wage stabilization is an essential condition for reducing the turn-over among dairy workers. Union officials and many dairymen are opposed to rigid freezing of wage levels because they fear that other wages might not also be frozen. The feeling is that "If wages are frozen we won't be able to keep our men nor will we be able to get other workers if they know that wages are frozen".

In the opinion of most employers and union officials, the most effective means of reducing worker turn-over would be the standardization of dairy wages by law and the enforcement of these standards to reduce poaching. Union officials believe that wage increases are desirable as a means of competing with other employment, but that such increases should come only through collective bargaining. The resulting scale should be strongly enforced so as to keep a small percentage of dairymen from disorganizing the labor situation.

Dairymen who pirate labor should be penalized, union officials say. The penalty suggested would require the worker to choose an alternative employer from among available openings. Representatives of the union and employers could police the situation and employers would be free to protest the loss of workers to other dairymen because of greater salary or easier jobs for a given salary.

III. STRUCTURE OF WAGE RATES

Lack of Standardization of Jobs

Dairy enterprises in the Los Angeles milkshed are relatively large-scale, specialized, and commercialized enterprises; considerable uniformity in types of jobs and in wage rates might well be expected. It is the finding of this investigation, however, that uniformity is lacking and that much variation exists in individual job requirements and in the pay received. Variations have been found from worker to worker, dairy to dairy, and area to area in the nature of the jobs, the cash pay, and the perquisites.¹

The most diversified job is that of the milker. But, depending upon the size of the dairy and the job organization, the milker may do nothing but milk or he may also strip, feed, wash his cows, weigh and dump his milk, handle his own manure, clean the barn, clean the equipment, or any combination of these additional tasks. Where jobs are highly specialized on the larger dairies of 500 to 2,500 cows, some individuals will only run the milking machines and others will strip after the machines. Additional jobs will be done by other individuals, either as single jobs or as a combination of several.

Changes in Wage Rates

Machine milkers in the Los Angeles dry-lot area receive higher wages than hand milkers. This difference, however, appears closely related to sizes of dairies. There is a tendency for larger dairies to pay higher wages and machine milkers are employed on the large dairies, whereas hand milkers are employed mainly on the small ones. In October 1942 machine milkers were being paid as much as \$300 per month and as low as \$150 per month in the Los Angeles area; the average wage for machine milkers on sample farms was \$209 per month as compared with \$179 for hand milkers.

Wage rates for milkers are lower in the San Bernardino area than in Los Angeles dry lot and still lower in the southern San Joaquin Valley. This wage differential does not exist, however, for general dairy hands (table 9). In part, the differences in milkers' wage rates in the various areas are due to differences in the amounts of perquisites offered.

Wage rates of milkers have advanced approximately one-third during the year ending October 1942 (table 10). Although this is a considerable increase, the rate of advance is not as rapid as has prevailed in the general farm wage rates in the State; for all farm wage rates in the State the increase was approximately 50 percent. Of the three producing areas of the Los Angeles milkshed, San Bernardino appears to have experienced a relatively smaller wage adjustment.

Table 9.- Average wage rates per month for 93 dairies of the Los Angeles milkshed, by type of job and periods

Area and type of job	October 1942	July 1942	January 1942	October 1941
	Dol.	Dol.	Dol.	Dol.
Los Angeles dry lot				
Hand milker	179	171	145	137
Machine milker	209	194	158	149
General dairy hand	109	109	91	87
Milker--field hand	---	---	---	---
San Bernardino				
Hand milker	155	147	130	125
Machine milker	155	143	125	117
General dairy hand	108	103	87	87
Milker--field hand	---	---	---	---
So. San Joaquin Valley				
Hand milker	141	130	104	88
Machine milker	147	132	117	113
General dairy hand	108	107	97	82
Milker--field hand	104	100	79	72

Table 10.- Average monthly wage rates for all milkers on 93 dairies in the Los Angeles milkshed, by areas and changes from January 1942

Area	October 1942	July 1942	January 1942	October 1941
	Dol.	Dol.	Dol.	Dol.
Los Angeles dry lot	196	182	149	140
San Bernardino	155	145	128	123
So. San Joaquin Valley	144	131	109	96
All areas	180	163	140	130
Percentage change from January 1942				
Los Angeles dry lot	+ 31.6	+ 22.1	---	- 6.0
San Bernardino	+ 21.1	+ 13.3	---	- 3.9
So. San Joaquin Valley	+ 32.1	+ 20.2	---	- 11.9
All areas	+ 28.6	+ 16.4	---	- 7.1

Variations in Wage Rates by Size of Dairy

Jobs are not highly standardized from one dairy to another. Specialization and also standardization in jobs and operations increase as the dairy grows larger. Consequently a finding that wage rates increase with the size of the dairy must be judged with this relationship in mind. The job of a milker on a large dairy is very likely quite different from that of a small one. Therefore, the two wage rates cannot be compared as though the job were exactly the same.

Regardless of this lack of uniformity, practically all dairy farm jobs can be classified into seven general groups. In the Los Angeles producing area these are: hand milker and stripper, machine milker, relief milker, dairy hand, feeder, and cow washer. In the more generalized enterprises of the San Joaquin and San Jacinto Valley areas, many of these specializations do not appear. In these areas, therefore, it was necessary to add the combination of milker (hand or machine) and field worker.

Table 9 indicates average monthly wage rates for the various types of jobs that were common to most areas of the milkshed. In order to indicate further the variation in broadly comparable jobs by size of dairy, additional classification has been made of the commonly specialized jobs in the Los Angeles production area (table 11). For many of the job specializations no average appears among the smallest size dairies because that job is not commonly found in that size of dairy. Table 11 indicates the tendency toward a higher cash wage for all jobs as the size of dairy increases.

Typical Rate for a "Standard" Job

In the calculation of all average wages shown on tables 9 through 11 the wage rates received by all persons working in the job classification have been grouped without regard to personal characteristics of the worker, the size of the job, or the perquisites received. In this instance, such a procedure appears justified because: 1) the amount of perquisites has not changed during the period and 2) the principal purpose up to this point has been to measure changes in the level of dairy wage rates. At this point, it is desirable to further refine these gross averages.

This may be done by comparing the averages as obtained above with average rates of pay for "standard" jobs. These "standard" jobs must be defined because no commonly accepted standards exist. The criteria must be determined on the basis of work output and the amount of perquisites received. As an approach to a "standard" job, the following criteria, applicable to milkers in the Los Angeles dry-lot area, are selected:

Hand milker (or stripper): Must milk 25-35 cows; if stripper, must handle between 60 and 120 cows; age between 21-60; no perquisites received other than milk.

Machine milker: Must milk 50-120 cows (depending upon whether milker does own stripping); age between 21 and 60; no perquisites other than milk.

Table 11.- Average wage rates per month for various types of jobs:
Larg-est dairies in Los Angeles County

	Hand milker	Machine milker	Relief milker	Milky hand	Feeder	Cow washer
	Dol.	Dol.	Dol.	Dol.	Dol.	Dol.
Dairies having less than 50 cows						
October 1942	180	---	---	---	---	---
July 1942	180	---	---	---	---	---
January 1942	100	---	---	---	---	---
October 1941	98	---	---	---	---	---
Dairies having 50-99 cows						
October 1942	171	202	---	---	---	---
July 1942	156	182	---	---	---	---
January 1942	144	153	---	---	---	---
October 1941	134	150	---	---	---	---
Dairies having 100-199 cows						
October 1942	181	204	1/8.50	93	---	---
July 1942	180	191	8.35	100	---	---
January 1942	144	153	5.80	96	---	---
October 1941	137	147	5.65	90	---	---
Dairies having 200 cows and more						
October 1942	204	215	---	130	173	132
July 1942	186	198	---	122	166	122
January 1942	167	160	---	84	144	122
October 1941	147	149	---	84	131	122
All dairies						
October 1942	179	209	1/8.50	109	173	132
July 1942	171	194	8.35	109	166	122
January 1942	145	158	5.80	91	144	122
October 1941	137	149	5.65	87	131	122

L/ Wage per day.

A summary of typical wage rates for such standard jobs with the gross average rate is as follows:

	<u>Hand milker</u>		<u>Machine milker</u>	
	<u>October 1942</u>	<u>October 1941</u>	<u>October 1942</u>	<u>October 1941</u>
1. Gross average per month....	\$ 179	\$ 137	\$ 209	\$ 149
2. Typical rate for "standard" job.....	\$ 205	\$ 145	\$ 215	\$ 155
3. Typical rate in relation to average.....	114.5%	105.8%	102.9%	104.0%

It is evident that rates for these "standard" jobs are somewhat in excess of the gross averages, but there is no great difference. The gross averages are somewhat lower because of a few cases of minor or disabled workers and a few instances of cash wages being lower because of unusual perquisites.

Range of Wage Rates

To get a picture of the extent of wage variation from worker to worker, both within the gross classification and the standard job classifications, a set of ranges is given in table 12. This indicates the range to be considerably less within the "standard" jobs for both hand and machine milker but still to be very great. Hand milkers on "standard" jobs receive all the way from \$140 a month to over \$240 per month; machine milkers, similarly, from \$160 to \$300.

The only common perquisite is milk, which is received by nearly all dairy workers. A few dairies sell milk to workers at reduced rates, but most dairies give the workers 1/2 to 1 gallon per working day free. There is no clear evidence that any adjustment is made in the cash wage rate depending upon whether the milk is taken, although the union agreement provides that the worker may elect to receive \$6 per month in place of milk.

The typical situation is for the worker to live away from the dairy and to receive only milk. Table 13 gives the proportions of workers in each producing area receiving various perquisites. With a few rather insignificant exceptions, the major practices in furnishing of perquisites appear to be of three kinds: 1) the worker receives nothing, or milk only; 2) the worker receives milk and family housing; 3) the worker receives board and room. Table 13 indicates that in the Los Angeles producing area three-fourths of the workers of all types receive nothing more than milk; 9 percent receive family housing, and 16 percent receive board and room.

In the San Bernardino and San Joaquin producing areas, larger proportions of workers receive family housing or board and room. Incidental items, such as meat, eggs, garden, water, lights, etc. are occasionally provided in the two latter areas.

Table 12.- Range of monthly wage rates for hand and machine milkers in Los Angeles dry-lot area, October 1942 (dairies having 50 or more cows)

Range of wage rates:	Hand milkers		Machine milkers	
	No.	No.	No.	No.
\$ 40 - 59	1	0	0	0
60 - 79	1	0	0	0
80 - 99	1	0	0	0
100 - 119	0	0	0	0
120 - 139	1	0	0	0
140 - 159	5	3	2	0
160 - 179	8	3	4	1
180 - 199	0	0	5	5
200 - 219	9	9	19	15
220 - 239	7	7	12	10
240 - 259	2	3	5	5
260 - 279	0	0	0	0
280 - 299	0	0	1	0
300 - 319	0	0	1	1
Total	35	24	49	37

1/ Defined as follows: Milking 25 to 35 cows or stripping 60-120 cows; age 21-60; no perquisites other than milk.

2/ Defined as follows: Milking 50-120 cows (depending upon whether does own stripping); age 21-60; no perquisites other than milk.

Table 13.- Percentages of dairy workers receiving perquisites in October 1941 and October 1942: 93 dairies in Los Angeles milkshed

Production area and size of dairy	October 1942				October 1941			
	Total	Nothing or milk only	Milk and family housing	Board and room	Total	Nothing or milk only	Milk and family housing	Board and room
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Los Angeles								
Under 50	---	---	---	---	---	---	---	---
50 - 99	100	79	16	5	100	62	19	19
100 - 199	100	70	8	22	100	75	15	10
200 & over	100	79	6	15	100	71	7	22
Total	100	75	9	16	100	71	14	15
San Bernardino	100	33	24	43	100	47	14	39
San Joaquin	100	22	58	20	100	19	52	29
Total	100	57	21	22	100	55	22	23

Comparing the proportions shown for October 1942 with October 1941, there has been no significant change in the furnish of perquisites during the last year.

The value of perquisites is very difficult to measure. So far as could be determined in this survey, no adjustment is made in cash wage when milk is furnished. Housing for the worker and his family is provided an adjustment of some \$10 to \$20 is sometimes made in the monthly cash wage. This has increased in the last year and might be placed at an average of \$12 for October 1941 and \$20 for October 1942. The value of board and room is even more difficult to handle, but appears to have been valued at around \$35 in October 1941 and at approximately \$60 in October 1942.

Comparative Wage Rates in War Jobs

As indicated elsewhere in this report, dairy hands leaving their jobs most often go to war industries and to other dairy farms. The loss from dairy farms to war industries was particularly great in the early months of this year. At present, wages are high enough to compete favorably with the rates paid in war plants so there seems to be little complaint now of workers leaving dairy farms for war industries. A few workers have been reported as having returned to dairy farms, particularly since the dairy-livestock-poultry freezing and deferment order was issued by the War Manpower Commission.

For their comparative interest, wage rates per hour in war industries in the Los Angeles area are as follows (data supplied by U. S. Employment Service):

	<u>Unskilled workers</u>	<u>Semiskilled workers</u>
Aircraft plants	\$0.60 - \$0.75	\$0.80 - \$1.00
Shipbuilding	0.88 - 0.95	0.96 - 1.10
Construction, war contracts and subcontracts (union scale)	\$0.87½	0.88 - 1.12

These rates are based on a 40-hour week. Workers are paid 1½ time for overtime and double time for the seventh day.

There are no available records of employment and earnings in war industries of persons comparable with those coming from dairy farms. It is estimated, however, that the work week is 44-48 hours, and that workers from dairy farms would get principally unskilled jobs.

At \$1.00 per hour (the top pay for an unskilled worker in aircraft) a person who worked 48 hours would earn \$39 per week or approximately \$156 per month. This is 13 percent less than the average milker in the Los Angeles area received in October 1942. To earn as much as the average milker, an aircraft worker at this rate would have to work each month:

160 hours straight time	\$120
32 hours overtime	36
16 hours double time	24
	<u>\$180</u>

This is equivalent to a 48-hour week plus two Sundays per month and it is doubtful that the average unskilled aircraft worker gets that much work.

As an unskilled construction worker, it would be necessary to work the full 48-hour week with time and one-half for overtime to equal the average milker's wage of \$160.

Comparison is made in terms of cash earnings only. Allowances for extra costs of housing and transportation would undoubtedly make the war industry jobs still less attractive by comparison.

Several characteristics of dairy work are somewhat unpleasant and encourage workers to seek nondairy jobs at the same or lower wages. One of these is the early and late hours and another is the split shift or broken workday. In the Los Angeles area, it is customary for milkers to begin working around 3 p.m. and work until 7 a.m. They start again at about 3 p.m. and work as late as 8 p.m. In addition to these undesirable hours, the work is monotonous and often cold and wet.

Collective Bargaining as a Factor in Determining Wage Rates

Approximately 114 large dairies in the Los Angeles dry-lot area operate under a union working agreement which stipulates minimum wages and working conditions and provides for selective hiring. This union is the A. F. of L. Local 737-- Hay haulers, dairy employees, and helpers.

For several months, the union has not been able to meet the demand for workers. As a result, an informal agreement has been made between the union and employers to place all unfilled orders for workers with the U. S. Employment Service after clearance through the union hiring hall. In addition, the union contract stipulates that employers may hire workers wherever they choose if the union is unable to supply workers on 24-hour notice. However, such non-union workers must apply for union membership within 60 days after employment begins.

In the past this union was active in collective bargaining and had a part in the determination of wage rates. During most of the last year, however, wages have been above the minimum set by union agreement. Hence, the present level of wages and working conditions has been only partly determined by collective bargaining in the past. Recent changes in current wage rates have been largely in response to competitive conditions facing dairymen.

IV. CHANGES IN THE MILK COW POPULATION AND VOLUME OF PRODUCTION

Number of Cows in Herds

The number of cows on the sample farms in October 1942 was slightly larger than the year earlier. Los Angeles dry-lot dairies had increased their cows by 5 percent. Dairies of all sizes except those of 50 to 100 cows had more cows, with the greatest increase being in the family-size dairies of less than 50 cows. Dairies of this size were larger by almost one-fifth. Dairies of 200 cows or more also gained significantly (table 14).

Cow numbers on the San Bernardino dairies were up by 5 percent; but on the San Joaquin dairies they remained the same.

These findings are corroborated by reports of 19 dairy correspondents in the Los Angeles area to the California Cooperative Crop and Livestock Reporting Service. Between November 1, 1942, and a year earlier these 19 dairymen had increased their herds by 10 percent. 7/

Number of Herds and Supply of Milk

A considerable number of producers have discontinued supplying fluid milk to the Los Angeles market during the last year or so, but an equal number have replaced them. A special tabulation of receipts of milk from producers in August this year compared with August last year made by the California Department of Agriculture, Bureau of Markets, indicates 125 names of dairies delivering milk in August 1941 which were no longer in the market in 1942, and 123 names of dairies delivering milk this August which were not on the records in August 1941. 8/ The remaining producers among approximately 700 supplying fluid milk to the market operated in both years. Total milk receipts from all producers this August were 4 percent higher than in August last year. It is clearly evident that to August no decline in milk supply occurred and that liquidation of herds, if it occurred, had not materially influenced the total number of producers delivering fluid milk. It appears that any "shortage" is the result of increased demand for milk from the increased population in the area rather than a decrease in supply of milk.

In this survey contacts were made with several dairies that had either started operations during the last year or had sold out. These were excluded because complete records could not be obtained, and tabulations are based on 93 complete reports. But it is interesting that of those excluded, two had come into operation since October 1941 and three had dropped out since that date. Reports available from two of the discontinued farms indicated that most of their cows were sold to other dairymen. One of the newly operating herd took over the cows of a herd being liquidated.

7/ Based on unpublished data from the records of the California Cooperative Crop Reporting Service, Sacramento, California.

8/ In the case of many of these dairies there was probably no change other than in name. Many dairies are known by two names, that is, the "Hillcrest Dairy" will also be known as John Vanderheim. During the year, the shipping records may simply be shifted in this way or to other members of the family.

Table 14.- Number of milk cows per herd on 93 dairy farms in Los Angeles milkshed

Area and size of herd	Number report- ing	Cows milked				Milk cows in herd (including dry cows)				Number, 1942, as of Oct. 1
		July 1		Oct. 1		July 1		Oct. 1		
		No.	No.	No.	No.	No.	No.	No.	Pct.	
Los Angeles dry lot										
Under 50 cows	11	33	33	29	28	37	34	33	117	119
50 -- 99	13	64	65	66	67	78	80	79	97	99
100 -- 199	22	105	103	103	101	127	126	123	104	104
200 and over	5	381	382	365	357	470	445	438	107	103
Total all sizes	51	106	106	103	102	129	126	123	104	105
San Bernardino										
Total all sizes	16	80	80	81	79	99	93	94	103	100
San Joaquin										
All sizes	26	65	70	68	68	82	82	80	96	100
Total milkshed	93	90	91	90	88	111	109	106	102	104

Turn-over of Cows in Existing Herds

The dry-lot dairies of the Los Angeles-Orange County area have a very high annual rate of turn-over of cows. The high rate of culling and replacement is associated with the high level of output and early for profitable operation on a relatively high-cost area. Almost all replacements are brought in from the outside to freshen. The in-shippments of dairy-type cattle to Los Angeles County were approximately 35,000 in 1939, 36,500 in 1940, and 39,000 in 1941. With dairy cows in commercial herds in Los Angeles County being estimated at 100,000, this means that turn-over was around 40 percent in 1939 and 1940 and about 39 percent in 1941.

Table 15 shows that the purchases and sales of cows reported by 93 dairymen for the period between January and November 15, 1942. In the Los Angeles-Orange County area these records indicate an annual rate of culling in 1942 of approximately 50 percent, but purchases of replacement stock have been sufficient to more than maintain existing numbers of cows. The rate of culling was greatest in the largest dairies. No exact accounting was obtained of the heifers raised on the farms for replacements or of the death loss of cows. In the Los Angeles County dry-lot area neither is of sufficient importance to merit much consideration. However, the larger numbers of heifers raised in the outlying portions of the district account for purchases running considerably less than sales.

Information from other sources tends to support indications of a somewhat heavier than normal turn-over of dairy cows in the dry-lot area. The number of cows supplied to dairymen in Los Angeles County has been somewhat greater than a year ago (table 16). The supplies of incoming cows have been enough larger in the last year to offset the heavier rate of culling and permit a slight increase in the total number of cows in dairy herds.

Available records do not give a complete answer on the actual slaughter of dairy cows as a measure of culling in the Los Angeles dry-lot area. Most of the interviewed farmers in the area indicated that the cows sold were shipped to Los Angeles Union Stockyards, presumably for slaughter. Since July 1940, separate records have been kept of dairy-type cattle received for slaughter at these yards (table 18). Unquestionably, receipts of dairy-type cattle at these yards for slaughter in the first 10 months of this year were substantially greater than in the same period a year ago. But these slaughter figures cannot be regarded as a direct indication of rate of turn-over of Los Angeles County dairy cows. The dairy cattle received for slaughter at Union Stockyards in 1941 totaled fully 1-1/2 times those probably slaughtered from Los Angeles County herds, indicating considerable shipping from outside areas. Only 60 to 80 percent of the dairy cows culled from Los Angeles County herds go through the Union Stockyards and no data are available to indicate whether the proportion is changing. However, these slaughter figures tend to lend weight to other indications of a fairly heavy rate of turn-over of milk cows.

Factors Behind the Rapid Turn-over

Several factors are commonly mentioned by dairymen as causes of unusually rapid turn-over. Among the causes suggested are: Culling at higher production standards, more spoiled udders as the result of less skilled milkers, use of

Table 15.-- Milk cows bought and sold, January 1, 1942, to mid-November 1942:
93 dairies in the Los Angeles milkshed

Size of herd and area	Number of cows bought and sold per 100 cows on farm, January 1, 1942					Average		
	Number during		Number adjusted to			value		place-
	10½ months		annual basis 1/			per head		ment
								cost
	Bought 2/	Sold 3/	Bought 2/	Sold 3/	less sold	Bought	Sold	per head
	No.	No.	No.	No.	No.	Dol.	Dol.	Dol.
Los Angeles dry lot:								
Under 50 cows	42.7	30.9	48.8	35.3	13.5	142	84	58
50 - 99	41.3	42.9	47.8	49.0	- 1.2	147	87	60
100 - 199	41.9	39.8	47.9	45.5	2.4	154	89	65
200 and over	53.2	51.2	60.8	58.5	2.3	128	80	48
Total	45.9	43.7	52.5	49.9	2.6	142	85	57
San Bernardino								
All sizes	15.1	24.8	17.3	23.2	---	125	77	---
San Joaquin								
All sizes	17.0	26.4	19.4	30.2	---	124	96	---
Total milkshed	35.0	37.1	40.0	42.4	---	139	86	---

1/ On the assumption that purchases and sales will still continue from November 15 to January 1 at same rates as in preceding 10½ months.
2/ Does not include heifers raised.
3/ Does not include deaths.

Table 16.-- Dairy cattle supplied to Los Angeles County dairymen
in first 10 months of years 1941 and 1942

Year	Shipments to Los Angeles County					Total
	From	From California	From other	Released		
	the Los Angeles	counties outside	counties within	from Union		
	marketing area	the Los Angeles	Los Angeles	Stockyards		
	No.	No.	No.	No.	No.	
1941 1/	17,673	12,155	791	2,830	33,452	
1942 2/	9,682	15,460	1,995	4,595	35,740	

1/ Includes shipments for originating within Orange, San Bernardino, Riverside, and Ventura Counties. For the purpose of this study Kern County is classed with the San Joaquin Valley area.
2/ Through October.

Source of data: Los Angeles County Livestock Department. Monthly recapitulations of dairy cattle shipments.

milking machines, and poorer quality cows. The level of production at which these farmers usually cull a cow depends considerably on her production history, whether or not she is in calf. In general, the normal culling point appears to be around 30 to 35 pounds of milk fat a month. There are definite differences of opinion among dairymen as to whether cows are now being culled at a higher than usual level of production. Some contend that high labor cost has made this practice necessary. Others say that the poorer quality of cows has made it necessary to keep cows to even lower production levels because available replacements are not so good as in the past. Evidence indicates that the culling point may be slightly lower than in the past.

There seems to be general agreement among these farmers that cows do not hold up as well in production under machine milking as with good hand milking. With two-fifths of the dairies interviewed in this area shifting from hand to machine milking during the past year, it would not be surprising if some difficulties were encountered. Some cows, particularly older ones, do not take well to machine milking, and the operator must gain some experience to be proficient. This would probably cause at least a temporary increase in culling of milk cows. In the long run the use of milking machines does not appear likely to increase the culling rate very much. It is generally recognized that the larger string handled by a machine milker permits a somewhat lower culling point (perhaps 5 pounds less fat per month) than in the case of hand milkers. This would help to offset any tendency of machine-milked cows to decline more rapidly in production but it would also mean that larger herds would be required for the same volume of production.

Quality of replacement stock may have a bearing on the rate of turn-over. Dairymen agree rather uniformly that cows now bought are of lower producing ability than those they used to get. The fact that more cows for replacement are being obtained this year by release from stockyards (table 16) suggests that quality may be declining somewhat, and individual farmers have mentioned cases of such cows remaining less than 60 days in the herd before again being sent to the yards.

The high rate of turn-over of cows in the Los Angeles area, together with shifting sources of replacements, may have some far-reaching effects on less intensive dairy sections of California. In the first 10 months of 1942 shipments of dairy cattle into Los Angeles County originating outside the State were less than 10 thousand head, compared with almost 18 thousand for the same period in 1941. On the other hand, shipments from San Joaquin Valley increased 6 thousand head, an increase of two-thirds) and from other California points (excluding the marketing area) by 1 thousand head, or about a third (table 17). The serious effect of these increased shipments from the San Joaquin Valley on dairying in that area is dependent on number of heifers raised for replacement. For the State as a whole, the number of heifers 1 year old and over kept for milk cows on January 1, 1942, was 15 thousand greater than a year earlier and about 20 thousand head larger than for 1939 and 1940. The 7 thousand head more cows going into Los Angeles County alone would not absorb all these additional available replacements, but if similar heavy turn-over exists in other coastal dairy areas some difficulties may be experienced in maintaining California milk cow numbers.

Table 17.—Shipments of dairy cattle into Los Angeles County originating
October 1941 to October 1942

Mo.	1941												1942											
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Pct.	Pct.	Pct.
Jan.	2,294	644	296	3,234	945	1,444	346	2,745	—	53.9	✓	175.0	✓	16.9	✓	16.1	✓	16.1	✓	16.1	✓	16.1	✓	16.1
Feb.	2,045	571	243	2,859	675	1,491	298	2,464	—	67.0	✓	161.1	✓	22.6	✓	22.6	✓	22.6	✓	22.6	✓	22.6	✓	22.6
Mar.	1,514	540	339	2,393	822	1,416	471	2,709	—	45.7	✓	162.2	✓	38.9	✓	38.9	✓	38.9	✓	38.9	✓	38.9	✓	38.9
April	2,009	734	76	2,819	506	888	265	1,659	—	74.8	✓	21.0	✓	248.7	✓	41.1	✓	41.1	✓	41.1	✓	41.1	✓	41.1
May	1,891	896	299	3,086	372	1,154	473	1,999	—	80.3	✓	28.8	✓	58.2	✓	35.2	✓	35.2	✓	35.2	✓	35.2	✓	35.2
June	1,776	897	341	3,014	644	1,429	418	2,491	—	63.7	✓	59.3	✓	22.6	✓	17.4	✓	17.4	✓	17.4	✓	17.4	✓	17.4
July	980	787	124	1,891	812	1,675	699	3,186	—	17.1	✓	112.8	✓	463.7	✓	68.5	✓	68.5	✓	68.5	✓	68.5	✓	68.5
Aug.	1,759	1,183	358	3,300	1,740	2,204	508	4,452	—	1.1	✓	86.3	✓	41.9	✓	34.9	✓	34.9	✓	34.9	✓	34.9	✓	34.9
Sept.	1,630	1,653	537	3,820	1,521	1,668	414	3,603	—	6.7	✓	0.9	✓	22.9	✓	5.7	✓	5.7	✓	5.7	✓	5.7	✓	5.7
Oct.	1,775	1,266	374	3,415	1,645	1,819	378	3,842	—	7.3	✓	43.7	✓	1.1	✓	12.5	✓	12.5	✓	12.5	✓	12.5	✓	12.5
Nov.	1,318	949	188	2,455	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Dec.	1,075	1,187	274	2,533	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Total	20,061	11,307	3,449	34,817	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

Jan. to:
June

11,529 4,232 1,594 17,435 3,964 7,932 2,271 15,067 — 65.6 ✓ 82.9 ✓ 42.5 — 19.2

July to:
Oct.

6,144 4,889 1,393 12,426 5,718 7,366 1,999 15,083 — 6.9 ✓ 52.7 ✓ 43.5 ✓ 31.4

1/ Excludes shipments originating in Orange, Riverside, San Bernardino, and Ventura Coun.

Source of data: Los Angeles County Livestock Department, Monthly Recapitulations of Dairy Cattle Shipments, January 1941 to October 1942.

Table 18.— All cattle 1/ and dairy-type cattle 2/ received for slaughter at Los Angeles Union Stockyards by month, January 1941 to October 1942

Month	1941			1942			Dairy cows as percentage of total:			Percentage change 1942 versus 1941		
	Dairy cattle			All cattle			Dairy cattle			Dairy cattle		
	No.			No.			No.	Pct.		No.	Pct.	Total
January	7,956	19,922	7,711	22,942	26.3	29.3	—	2.1	—	2.1	—	—
February	5,894	15,742	6,504	21,805	37.4	29.8	—	10.3	—	10.3	—	—
March	6,626	19,461	7,066	26,607	34.0	26.6	—	6.6	—	6.6	—	—
April	5,340	20,514	7,770	24,911	21.5	21.5	—	39.0	—	39.0	—	—
May	4,483	21,134	6,876	25,580	21.1	26.4	—	54.1	—	54.1	—	—
June	4,959	24,930	6,265	29,660	19.9	21.1	—	26.3	—	26.3	—	—
July	4,706	24,339	6,977	25,920	18.3	27.1	—	43.3	—	43.3	—	—
August	4,122	23,740	7,514	27,636	17.4	27.2	—	32.3	—	32.3	—	—
September	4,777	29,369	8,164	26,252	16.3	31.1	—	70.9	—	70.9	—	—
October	5,300	29,419	6,765	26,083	18.0	38.6	—	27.6	—	27.6	—	—
November	3,711	23,248	—	—	16.0	—	—	—	—	—	—	—
December	4,987	28,271	—	—	17.6	—	—	—	—	—	—	—
Total	62,641	280,208	—	—	—	—	—	—	—	—	—	—
Jan. 1 to June 30	35,038	121,822	41,521	152,405	28.8	27.1	—	18.5	—	18.5	—	—
July 1 to Oct. 31	18,905	106,867	29,420	105,691	17.7	27.8	—	55.6	—	55.6	—	—

1/ Including dairy-type cattle.

2/ Includes dairy-type bulls; excludes T. B. and Bang's Disease reactors; excludes dairy animals consigned for slaughter but subsequently released for dairy purposes.

Source of data: Los Angeles Union Stockyards; Los Angeles County Livestock Department.

V. CHANGES IN COSTS AND RETURNS

Los Angeles Dry-Lot Dairies

Significant changes have occurred during the past year in various cost and income items affecting the dairy business. To measure the effect of these changes on dairy farm income, a budget has been prepared for a typical dry-lot dairy of 90 cows with 75 cows milked continuously throughout the year. This budget is representative of the most numerous size-group of dairy herds in the Los Angeles producing area. In such a set-up only sufficient land is used to provide space for milking sheds and other dairy buildings, corrals, and exercise yards. All feed is purchased and practically all replacements for the herd are shipped in from outside. Calves are usually sold at the age of one week or less.

Other sizes of dairies would tend to have incomes and costs proportionate to the number of cows in the herd. Analysis of 81 dairy records obtained by the California State Department of Agriculture in the Los Angeles producing area for the year 1939 indicates rather uniform costs and returns per cow for all herds covered, ranging from 30 to 1,800 cows. Ability to finance the enterprise and managerial skill apparently are the major differences between small and large herds, rather than differences in returns per cow.

Rates of cost and income are based on prices existing in the area in October of 1941 and 1942. The budget, therefore, reflects the income situation that would exist if the rates for October of each year had prevailed throughout the year and presents a direct comparison of change in income and expense occurring between October 1941 and October 1942.

Included under the heading "assumed 1943" are the results that would be obtained if wage costs were stabilized at October 1942 levels, feed and replacement costs increased moderately, returns for butterfat remained the same as October 1942, and production per cow declined somewhat as a result of less skilled hired help, lower quality cows, and poorer quality of hay. These assumptions for 1943 should be kept in mind in interpreting the results. The data for 1941 and 1942 presume to represent actual conditions in October of each year.

Dairy cow replacements: The rate of replacement of dairy cows has increased during the year. Replacements are generally of poorer quality than were

received in previous years, which results in a shorter period before the cows reach the culling point. Less-skilled dairy workers and increased use of machines is expected to have some effect on increasing turn-over. This increase is reflected in the budget by increasing the number of cows purchased for replacement from 35 head in 1941 to 40 head in 1942 (table 19).

Production per cow: Average annual production in the Los Angeles production area has been about 390 pounds of milk fat per cow with the prevailing rates of feeding. Available evidence indicates a slight decline in production per cow because of the increased rate of turn-over, poorer quality of replacements, lower culling points, less-skilled dairy workers, and introduction of milking machines. The combined result is represented in the budget as a decline in the production per cow of 10 pounds of milk fat.

Feed: Feeding rates are high in this area. Most dairies feed in excess of 5000 pounds of grain and protein concentrate feeds per cow per year. The feeding rates used and the composition of the dairy ration are believed to represent the usual practices in the dry-lot dairies (table 20). There is no evidence to indicate that the rate of feeding has undergone any material change during the year, but there has been some change in the composition of the dairy concentrate ration. Copra meal formerly was an important part of the ration, but because of curtailed imports and high prices little is now used. The ration used in the budget for 1941 includes about 9 percent copra meal. For 1942 linseed meal has been substituted for copra meal. The most variable item between dairy farms is in the quantity of green feed used -- usually green alfalfa. The larger dairy farms generally use greater quantities of green feed than do the dairies below 150 or 200 cows.

The major change in cost of feed occurred in alfalfa hay which increased from an average of \$18 per ton in October 1941 to \$24 in October 1942 (table 21). Hay coming into the Los Angeles market is said to be of much poorer quality than last year. Labor shortages, coupled with inclement weather, caused spoilage of hay in the San Joaquin Valley. Labor scarcity alone is blamed for bleaching and loss of leaves in hay from the Imperial Valley. A shift from motortruck to rail shipment will increase costs further, because of the increased handling required. Prices of concentrate feeds, including grain, molasses beet pulp, and high-protein concentrates, have remained the same, or declined slightly. The net result has been a material advance in the total cost of all feeds. In the representative dairy included in the budget, this represented an increase in cost of feed from \$14,875 in 1941 to \$17,516 in 1942.

Hired labor: On the basis of available data, it has been determined that the 90-cow herd will require one machine milker, a combination general dairy hand and hand milker or stripper, a relief machine milker for 4 days per month, and full-time attention of the operator for management and general work around the dairy in connection with feeding, milking, and general dairy operations.

Table 19. - Livestock numbers, purchases, and sales, Los Angeles
90-cow dry-lot dairy, 1941 and 1942

	1941				1942			
	No. :	Number :	Number :	No. :	Number :	Number :		
	head :	purchased :	sold :	head :	purchased :	sold :		
Cows	90	35	30	90	40	35		
Bulls	2	0.3	0.3	2	0.3	0.3		
Calves 1/	85	—	85	85	—	85		

1/ Sold at age of one week or less.

Table 20. - Quantity of feed purchased, Los Angeles 90-cow dry-lot
dairy, 1941 and 1942

Kind of feed	Quantity purchased and fed			
	Per : cow (Tons)	All : cows (Tons)	Bulls : (Tons)	Total all : animals (Tons)
Barley, rolled	0.4	36.0	0.5	36.5
Barley or mill run	0.4	36.0	0.5	36.5
Molasses, beet pulp	0.4	36.0	—	36.0
Cottonseed meal	0.3	27.0	—	27.0
Copra or linseed meal 1/	0.3	27.0	—	27.0
Total concentrates	1.8	162.0	1.0	163.0
Alfalfa hay	4.5	405.0	10	415.0
Green feed	2.5	225.0	2	227.0

1/ Copra used in 1941, linseed in 1942.

Table 21. - Expense and income rates, Los Angeles County, 90-cow dairy, 1941, 1942, and assumed 1943

Item	Unit	1941	1942	Assumed 1943
		Dol.	Dol.	Dol.
<u>Expense items:</u>				
Dairy cows	Per cow	140.00	160.00	170.00
Hired labor:				
Machine milker	Per month	150.00	205.00	205.00
General dairy hand	Per month	135.00	175.00	175.00
Relief milker	Per day	5.65	8.50	8.50
Feed:				
Barley	Per ton	37.00	35.00	39.00
Brass or millrun	Per ton	40.00	40.00	42.00
Molasses beet pulp	Per ton	37.90	36.00	40.00
Cottonseed meal	Per ton	43.00	42.00	43.00
Copra meal	Per ton	40.00	—	—
Linseed meal	Per ton	—	38.00	40.00
Alfalfa hay	Per ton	18.00	24.00	27.00
Green feed	Per ton	4.50	6.00	7.00
Hauling	B.F.	0.03	0.03	0.03
Investment	Per cow	235.00	255.00	265.00
<u>Income items:</u>				
Cows sold	Per cow	84.00	108.00	108.00
Butterfat	Per pound	0.78	0.96	0.96

With the less-experienced help that is now available on most dairy farms, it is necessary for the operator to work longer hours this year than last and he must give more attention to detail.

Miscellaneous items of expense, such as taxes, license, insurance, transportation costs, and supplies, were estimated by analysis of a group of 81 dairy farm records obtained in the Los Angeles producing area for the year 1939 by the California State Department of Agriculture, Bureau of Markets. Adjustments were made for changes in price levels that have occurred since, largely on a judgment basis. Investment in the dairy plant and herd was estimated from these records and adjusted for the change in the number of cows from 1939 to 1941 and 1942. It was arbitrarily assumed that current interest payments would be equivalent to interest at 6 percent on one-fourth of the total value of investment. All of these miscellaneous items of expense are relatively minor and changes in them will not affect the total cost picture materially.

Operating Expenses: Changes that have occurred between October 1941 and October 1942 in the various major items of income and expense per unit are shown in table 21. For the 90-cow dairy herd, total cash operating expenses increased from \$28,402 in 1941 and \$31,873 in 1942 (table 22), an increase of 12 percent. The increases in cost of feeds by 18 percent, wages paid to labor by 35 percent, and increased cost of replacement cows by 31 percent accounted for practically all of the increase in gross operating expenses. Interest payments have remained approximately constant because of an increase in the price received for cull cows for slaughter purposes.

Income: Total cash income for 1941, primarily from milk sales and sale of cull cows, was estimated at \$30,792. In 1942 the cash income had increased to \$37,597 -- mainly the result of an increase in the price paid for milk fat from 78¢ per pound in October 1941 to 96¢ per pound in October 1942.

The result of changes occurring in cost and income items was an increase in net cash income from \$4,390 in 1941 to \$5,724 in 1942. These net cash income figures represent the estimated return to the operator for his labor and management, plus interest on investment. If it is assumed that three-fourths of the estimated capital investment is owned, and interest is allowed at 3 percent, the labor and management income alone would be about \$3,400 in 1941 and about \$4,700 in 1942. Some additional allowance might be necessary to take care of interest on operating capital, although this should not be more than \$300 or \$400 for interest on the average dairy farm of this size.

On the basis of the above analysis it would appear that the operators of these dairy farms have obtained a reasonable return for their labor and management. This return apparently has been greater in 1942 than in 1941

Table 22. - Expenses and income for 90-cow herd, Los Angeles County,
1941, 1942, and assumed 1943 ^{1/}

Item	1941	1942	Assumed: 1943	Percentage	
				1942 of 1941	1943 of 1942
	<u>Doll.</u>	<u>Doll.</u>	<u>Doll.</u>		
	14,875	17,516	19,431	118	111
Hired labor:					
Machine milker	1,800	2,460	2,460	137	100
General dairy hand	1,620	2,100	2,100	130	100
Relief milker	271	408	408	150	100
Total hired labor	3,691	4,968	4,968	135	100
Hauling ^{2/}	1,053	1,026	972	97	95
Cows bought	4,900	6,400	6,800	131	106
Bull bought (0.3)	53	68	68	128	100
Taxes, license, & insurance	900	900	900	100	100
Current interest	330	345	350	105	101
Supplies & miscellaneous	600	650	675	108	104
Total cash operating expense	28,402	31,873	33,964	121	107
Income:					
Milk ^{3/}	27,378	32,832	31,104	120	95
Cull cows	2,520	3,780	3,780	150	100
Cull bulls (0.3)	54	60	60	111	100
Calves	340	425	425	125	100
Miscellaneous (manure, etc.)	500	500	500	100	100
Total cash income	30,792	37,597	35,869	122	95
Net cash income	4,390	5,724	1,905	130	33

^{1/} See appendix for explanatory notes and assumptions made for specific items.

^{2/} Declining from year to year because of the assumed decline in volume of production. See footnote 3.

^{3/} Average of 390 lbs. butterfat per cow in 1941, 360 lbs. in 1942, and 360 lbs. in 1943.

If these changes were fully realized, the resulting changes would mean a decrease in total farm income of about \$1,900 and an increase in operating expenses of about \$100. The net cash income of \$5,724 in 1942 thus would be reduced to \$4,824 -- little more than enough to cover depreciation costs and interest on investment, with little or no return to the operator for his labor and management.

This clearly demonstrates that wage stabilization even though effective would not be sufficient of itself to assure continuation of present incomes to dairy operators without additional controls on other major expense items, or without allowing compensatory increases in the price received for milk.

Southern San Joaquin Valley

Production of milk in the San Joaquin Valley for the Los Angeles market differs considerably from that in areas in the immediate vicinity of consuming centers. More land is available, particularly irrigated pasture and hay land; distances from major war industries and markets are greater; and dairying is frequently associated with other farm enterprises.

Because of time limitation no budget was prepared to illustrate the returns to dairymen and the changes which have taken place in their dairy organization, but some information was obtained on most of the cost and income items, as well as operating practices, particularly as they vary from those in the Los Angeles County area.

Feed for the dairy portion of the dairy ration is made up of hay, alfalfa, and pasture. The most important concentrates are copra meal, beet pulp, and barley. The shortage of copra meal has caused a shift to cottonseed meal, linseed meal, and soybean meal. Beet pulp is reported to be scarce, and the available supply is estimated to be sufficient until about January 1948. The labor shortage in haying has caused many dairymen to feed their alfalfa green during the major part of the growing season and prepare hay only in such quantities as the available labor allows. Hay supplies this year are generally of lower quality than in preceding years because of adverse weather conditions combined with shortage of help.

Comparatively small quantities of feed are bought by dairymen in the Southern San Joaquin Valley -- in part because farms produce most of the roughage required and because relatively high prices prevail for concentrated feeds compared with returns from dairy products. The price of protein concentrates here is frequently above that in Los Angeles. Most of these products are imported or handled through dealers in the central feed market of Los Angeles. Even cottonseed meal, produced in the San Joaquin Valley, is at times quoted above Los Angeles market prices. For this reason, some dairymen have been accustomed to feed whole cottonseed instead of meal. Alfalfa hay and barley are sold at Los Angeles prices minus transportation charges.

Dairy cow replacements: Dairy cows are kept in the dairy from 6 to 10 years unless they are poor producers or must be disposed of for other reasons. A large number of replacements are bought, chiefly from nearby dairies. By far the larger part of the replacement stock is raised on the dairy farm and some farms have dedicated livestock markets, such as Hanford in Kings County, and go to Los Angeles for slaughter or into dairy herds. Prices for replacement cows in October 1942 ranged from \$110 to \$140.

Table 1 shows that the number of dairy cows in grade "A" dairies has declined together with the number of dairy calves and heifers. For example, records of the livestock inspector in Kern County indicate that on January 1, 1942 there were 11,542 head of dairy cows in commercial dairies in that county, while on October 15, 1942 this number had declined to 10,885. The number of dairy calves and heifers reported on January 1, 1942 was 4,600, whereas on October 15, 1942, 4,410 head.

Hired labor: The labor need on dairies is supplied mostly by family labor. On dairies of 150 to 400 cows, of which there are only few, only family labor is used in addition to family labor. Wages are higher, where they are not by no means so clearly defined as on dry-lot dairies, where wages are \$2.00 to \$2.50, plus room and board for single men, and house, milk, and utilities for married men. The lower wages are usually paid by larger dairymen, who generally have the larger families and do not hire much labor except where members of the family have been drafted or have left for jobs in other industries.

Several months ago the draft was reported to be the major cause for shortage of labor but more recently the publicity on "freezing" of laborers on dairies is reported to be the chief reason why dairy help is leaving.

Size of dairy herd: The dairies in the Southern San Joaquin Valley delivering grade "A" milk for shipment as whole milk to Los Angeles are generally larger in size than those delivering milk for shipment as grade "A" cream to Los Angeles and those delivering milk for local manufacture. The majority of dairies in the first group have over 75 cows, the second group from 30 to 75 cows, and the third from 5 to 50 cows. All dairies in Kern County qualify for shipment of grade "A" milk. In counties farther North the proportion of dairies delivering milk for shipment as whole milk declines with greater distances from Los Angeles whereas the proportion of dairies delivering to local manufacturing plants increases.

Milk production: In all counties of the Southern San Joaquin Valley a decline in milk production is reported, varying from 10 percent in Kern County to less than 1 percent in Tulare. Family-sized dairies, except in isolated cases,

ses, have maintained or increased production whereas some large dairies
 ve sold out, reportedly because of labor difficulties. A considerable
 number of dairy farms are said to be unstocked and it is the opinion of
 is local people that these should be brought back into production by some pro-
 gram or subsidy. Cows sold from dairies on which production has been dis-
 continued have been used chiefly for replacements in the area and in
 Los Angeles County. Many farmers not formerly in commercial milk production
 have bought some cows, generally from 5 to 10, and are delivering milk to
 local manufacturing plants. Those do not qualify for production of grade
 "A" milk and their total output is not large enough to offset the output of
 dairies which have shifted or are shifting from manufacturing milk to market
 milk. Production per cow is estimated for grade "A" dairies between 300 to
 330 pounds of milkfat. Manufacturing milk dairies generally have a produc-
 tion of less than 300 pounds per cow.

Milk prices: Prices paid to producers in the Southern San Joaquin Valley for
 October 1942 were 71 cents for manufacturing milk, 82 cents for grade "A"
 milk to be used as cream, and 86 cents for grade "A" milk to be shipped as
 whole milk. The differential between prices for cream and whole milk use is
 sufficient to induce dairymen to install mechanical refrigeration as fast
 as priorities can be obtained for materials. Prices for November are ex-
 pected to be from 1 to 2 cents higher. Efforts which are being made by dairy-
 men to continue and even increase production on family-sized units indicate
 that prices are satisfactory to them at the present time.

APPENDIX

Explanatory Notes

Budget for dry-lot dairy, Los Angeles County, included in Section V:

- (1) Number of cows purchased - increased from 35 in 1941 to 40 in 1942 on basis of higher rate of turn-over.
- (2) Calves produced - assumed that in most instances cows were bought before freshening.
- (3) Milk production per cow - decreased slightly because of lower culling point, lower quality of cow, less efficient labor and greater labor turn-over, and increase in use of milking machines. Feed inputs remained same in both years.
- (4) Price of cows: Culls sold - based on slaughter quotations for "common cows, grain fed" at Los Angeles for October 1941 and October 1942 - 7¢ and 9¢ per lb., respectively, at 1,200 lbs. per cow. Bulls sold at average weight of 1,500 lbs. and at a price of 2¢ per lb. above cow quotations. Replacements bought - at an average price per cow of \$140 in 1941 and \$160 in 1942.
- (5) Milk sales include the milk supplied to hired laborers and used by the family. The latter could have been charged as an expense, but would probably be only about 200 to 250 lbs. of milkfat per year, a minor item.
- (6) Milk prices - the price paid to producers by distributors for Class I milk was 82¢ per lb. in October 1941 and 97.5¢ in October 1942. The blended price was estimated at 4¢ below the Class I price in October 1941 and 1-1/2¢ below the Class I price in 1942. This narrowing of spread between the Class I and blended price was caused primarily by a decline in the percentage of Class 4 milk from 6 percent of the total in 1941 to less than 1 percent in 1942.
- (7) Hired labor - includes one machine milker and one general dairy hand. In addition the operator spends full time assisting in feeding, milking, and general dairy management. With less experienced help the operator does more work in 1942 than in 1941. In addition to the above, a relief milker is hired for 4 days a month at \$5.65 a day in 1941 and \$8.50 a day in 1942. Wage rates for machine milkers were \$150 a month in October 1941 and \$205 a month in October 1942; for the general dairy herd, were \$135 a month in 1941 and \$175 in 1942.
- (8) Investment - based on records of the California State Bureau of Markets for owned farms of this size for 1939, which showed average investments of \$205 per cow in the herd. This rate was adjusted to \$235 per cow for 1941 and \$255 for 1942 to allow for increases in value of cows. Rented farms in 1939 paid an average of \$750 per year for rent for 90 - cow herds and had average investments by the operator of \$127 per cow, principally the value of cows.



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